REMARKS

Favorable reconsideration of this application, in light of the preceding amendments and following remarks, is respectfully requested.

Claim Rejections under 35 USC § 102

Claims 1, 4-5, 7-8, 10-14, 16 and 35 remain rejected under 35 U.S.C. 102(b) as being anticipated by Chan (US Patent No. 6,210,896).

This rejection is respectfully traversed.

Applicants respectfully repeat that Chan '896 fails to teach "passing the labeled proteins, polypeptides or peptides through one or more nanopores, an inner surface of the nanopores coated with a semiconductor material" as recited in independent claim 1. The Examiner's position on this limitation is that this limitation "is a mental process, which does not involve any active method steps." Page 11, lines 10-11, of the Action. Applicants respectfully submit that rejection under 23 USC 102 is not a proper statutory basis for rejecting a claim containing as a mental step. Instead, the appropriate statutory basis is 35 USC 101. Furthermore, the Examiner's position that the limitation "passing the labeled proteins, polypeptides or peptides through one or more nanopores, an inner surface of the nanopores coated with a semiconductor material" is a mental step is totally incorrect. A mental step is an abstract concept that requires human thought. The limitation "passing the labeled proteins, polypeptides or peptides through one or more nanopores, an inner surface of the nanopores coated with a semiconductor

material" is a physical step, not just a human thought. Therefore, this limitation is not a mental step.

The Examiner also states, "In regards to the inner surface of the nanopores coated with a semiconductor material, this is not an active method step. This is a property of the nanopore, and the 'coated' implies that the method step already occurred, and is no longer an active method step." Applicants respectfully submit that the Examiner has construed "coated with" as a step in the method claim. This is not correct. Applicants respectfully submit that "coated with" means "having a coating of." The Examiner is correct that nanopores having a coating of a semiconductor material is a property of the nanopore. In order to anticipate claim 1, Chan must not only disclose all of the steps disclosed in claim 1 but must also disclose a nanopore having a semiconductor coating.

Chan '896 fails to teach "nanopores coated with a semiconductor material" yet the Examiner insists that it does, citing column 36, lines 14-19, of Chan '896 (see page 6, line 1, of the Action). Column 36, lines 14-19, of Chan '896 states:

> Polymer 39 is pulled closer to tip 70 using dielectric forces created by applying an AC field to electrode 85 and waveguide 66, i.e., metal layers 64 and 74, in addition to the DC field applied across wires 98A and 98B. The AC field applied capacitively with respect to the DC field generates an inhomogeneous field in nanochannel 71.

The Examiner construes "metal layers 64 and 74" as being a semiconductor material as paragraph [0078] of the specification US 2005/0282229 A1 states that the "semiconductor material includ[es] ... metal-based compositions such as metals or metal oxides." Applicants respectfully submit that while some metal-based

compositions can be a semiconductor material, persons of ordinary skill in the art would recognize that metal layers 64 and 74 of Chan '896 are metallic coatings, not a semiconductor coating. The reasons are the following.

Chan '896 states in column 36, lines 3-4, that "[t]he apparatus includes a single triangular waveguide 66 and a metal electrode 66." Chan '896 then states in column 36, lines 6 and 7, that the "[t]riangular waveguide is surrounded by metal layers on all sides." Then, in column 36, lines 14-16, Chan '896 states, "Polymer 39 is pulled closer to tip 70 using dielectric forces created by applying an AC field to electrode 85 and waveguide 66, i.e., metal layers 64 and 74." To create an AC field between electrode 85 and metal layers 64 and 74 of a strength such that polymer 39 (which is a dielectric material) is pulled closer to tip 70 using dielectric forces, it is necessary that both electrode 85 and metal layers 64 and 74 be made of a metallic material, not a semiconductor material. If layers of 64 and 74 of Chan '896 were made of a semiconductor material, then it would not have been possible in Chan '896 to pull polymer 39 closer to tip 70 using dielectric forces created by applying an AC field as the dielectric forces created between metal electrode 85 and layers 64 and 74 made of semiconducting materials would be of negligible or zero strength.

In fact, Chan '896 refers to "metal layers 64 and 74" in the context of: "FIG. 4 is a cross-sectional view of an apparatus to which the molecular motor may be attached for optical analysis." See column 36, lines 1-2, of Chan '896. A careful review of Chan '896 shows that FIG. 4 is missing in Chan '896. Therefore, Chan '896 is also not

enabling with respect to the portions relied upon by the Examiner in making the anticipation rejection.

Claims 1, 4-5, 7-8, 10-14, 16 and 35 remain rejected under 35 U.S.C. 102(e) as being anticipated by Chan (US Patent No. 6,355,420). Claims 1,4-5, 7-8, 10-14, 16 and 35 remain rejected under 35 U.S.C. 102(a) as being anticipated by Chan (US Patent # 6355420).

This rejection is respectfully traversed.

Applicants respectfully repeat that Chan '420 fails to teach "passing the labeled proteins, polypeptides or peptides through one or more nanopores, an inner surface of the nanopores coated with a semiconductor material" as recited in independent claim 1. The Examiner's position on this limitation is that this limitation "is a mental process, which does not involve any active method steps" (see page 11, lines 10 and 11, of the Action). This position is totally incorrect as stated above.

The Examiner recognizes that "Chan '420 also teaches that nanochannel can be prepared by electroless deposition procedure with produces a metal fibril running the complete width of the polycarbonate template membrane." See page 12, lines 13-16, of the Action. Then, the Examiner makes the incorrect assumption that the electrolessly deposited metal fibril in Chan '420 is a semiconductor. This is an incorrect assumption because electroless deposition (which is also known as electroless plating) can only be used to deposit a metal layer, not a semiconductor layer. This fact is well known to persons of ordinary skill in the art. For example, McGraw-Hill Encyclopedia of Science & Technology, Vol. 4, page 710 (1982), states:

Electroless plating

> A chemical reduction process which, once initiated, is autocatalytic. The process is similar to electroplating except that no outside current is needed. The metal ions are reduced by chemical agents in the plating solutions, and deposit on the substrate. Electroless plating is used for coating non-metallic parts.

As metal ions are reduced by chemical agents in the plating solutions, and deposit on the substrate, what is deposited is a metal layer not a semiconducting material layer. Also, consistent with the fact that electroless plating is used for coating non-metallic parts, Chan '420 uses electroless plating for depositing a metal fibril running the complete width of the polycarbonate template membrane, which is a non-metallic part.

Also, as explained in US Patent 7323058 entitled "Apparatus for electroless deposition of metals onto semiconductor substrates" it is possible to deposit metals onto semiconductor substrate by electroless deposition, but there is no process for electroless deposition of a semiconductor on a polycarbonate substrate.

In short, Applicants respectfully submit that the Examiner will kindly recognize the fallacy in the Examiner's position that the metal layer on the polycarbonate template membrane of Chan '420 is made of a semiconductor material.

Claim Rejections under 35 USC § 103

Claims 1, 3-5, 7-8, 10-14, 16 and 35 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Chan (US Patent # 6,210,896).

This rejection is respectfully traversed.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). *See also* MPEP 2143.03.

As explained above, Applicants respectfully repeat that Chan '896 fails to teach "passing the labeled proteins, polypeptides or peptides through one or more nanopores, an inner surface of the nanopores coated with a semiconductor material" as recited in independent claim 1.

Claim 2, 6, 15 and 32-34 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Chan (US Patent No. 6,210,896) as applied to claims 1, 3-5, 7-8, 10-14, 16 and 35 above in view of Thompson et al (US Patent No. 5,324,637).

This rejection is respectfully traversed.

As explained above, Applicants respectfully repeat that Chan '896 fails to teach "passing the labeled proteins, polypeptides or peptides through one or more nanopores, an inner surface of the nanopores coated with a semiconductor material" as recited in independent claim 1. As claims 2, 6, 15 and 32-34 depend directly or indirectly from claim 1, the obviousness rejection of claims 2, 6, 15 and 32-34 should be withdrawn as claim 1 should be deemed patentable.

Claim Rejections under 35 USC § 112, second paragraph

Claims 2, 6, 15 remain rejected under 35 U.S.C. 112, second paragraph.

This rejection is respectfully traversed and should be withdrawn in light of this Amendment.

Claims 34-35 are rejected under 35 U.S.C. 112, second paragraph.

This rejection is respectfully traversed.

Claim 34 has been amended as understood by the Examiner to mean that the in vitro translation system can be carried out in cells systems.

The term "sub-nanometer" in claim 35 is well known to persons of ordinary skill in the art to mean of a scale smaller than a nanometer.

Claim Rejections under 35 USC § 112, first paragraph

Claims 2, 6, 15 and 32-34 are rejected under 35 U.S.C. 112, first paragraph.

This rejection is respectfully traversed.

Paragraph [0036] of the specification explicitly teaches that "Labeled proteins encoded by the nucleic acid template may be produced by *in vitro* translation or by linked transcription/translation." That is, the specification explicitly teaches at least two methods, (1) *in vitro* translation and (2) by linked transcription/translation, for "producing one or more labeled proteins, polypeptides or peptides encoded by the template nucleic acid." Thus, the specification is indeed enabled for "producing one or more labeled proteins, polypeptides or peptides encoded by the template nucleic acid" as recited in claim 1. Furthermore, paragraph [0044] to [0063] provide details regarding labeling proteins. Applicants respectfully submit that the Examiner should please refer to these paragraphs.

Claim Objections

The Examiner states that claim 33 is objected to for the following minor informality for failing to include a period at the end of the claim. Actually, claim 34 did not have a period. This error has been corrected in this Amendment.

In view of the above amendment, applicant believes the pending application is in condition for allowance. The Director is authorized to charge any fees necessary and/or credit any overpayments to Deposit Account No. 03-3975, referencing Docket No. 043395-0378252.

Respectfully submitted,

Dated: August 10, 2009

By: /Raj S. Dave/

Raj S. Davé
Registration No.: 42,465
Attorney for Applicant(s)

Customer No. 86175
PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. Box 10500
McLean, VA 22102
Telephone: 703-770-7900
Facsimile: 703-770-7901